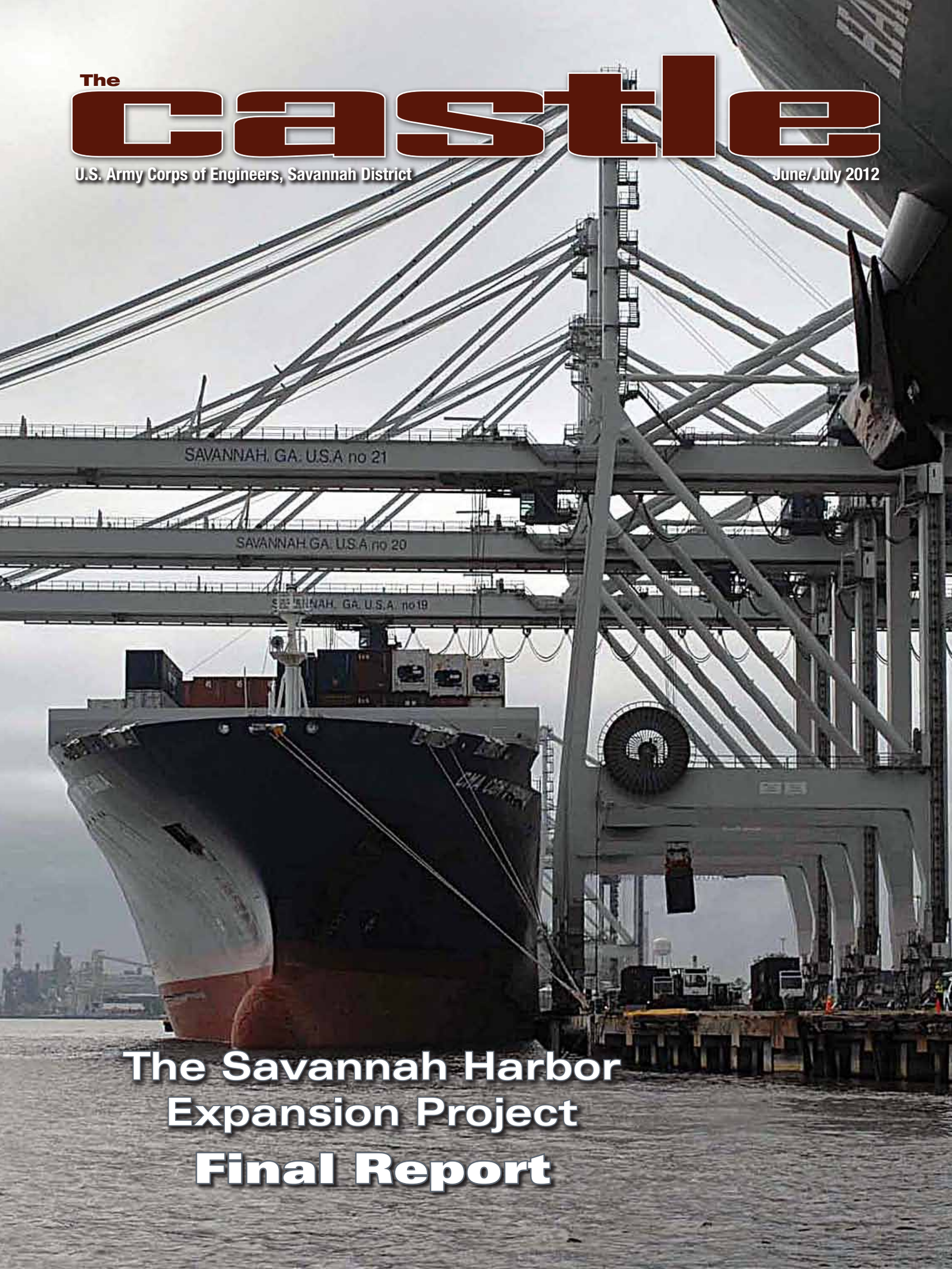
The castle
U.S. Army Corps of Engineers, Savannah District
June/July 2012



The Savannah Harbor Expansion Project

Final Report

The castle

News magazine of the
U.S. Army Corps of Engineers,
Savannah District

Commander
Col. Jeffrey M. Hall

Chief, Public Affairs
Billy Birdwell

Editor
Rashida Banks

Writers and Contributors
Sandra Hudson
Tracy Robillard

Authorization: *The Castle* is an authorized unofficial news magazine of the Savannah district. It is published periodically in accordance with provisions of Army Regulation 360-1, under supervision of the Corporate Communications Office. It is prepared on a desktop publisher and printed by offset.

Circulation: 1,700 copies/issue.

Submissions: News, features, photographs and art are solicited; publication depends on general interest as judged by the editor. Direct queries to the editor: e-mail: Rashida.u.banks@usace.army.mil Phone: (912) 652-5756; Fax: (912) 652-5944. Mail submissions to the Corporate Communications Office, U.S. Army Corps of Engineers, Savannah District, 100 W. Oglethorpe Ave, Savannah, Ga. 31402-0889. Contents, views and opinions expressed in this publication are not necessarily those of the Department of Army or this command. News copy is prepared in accordance with AP (Associated Press) Style Guide. All photos, unless otherwise credited, are official U.S. Army photos.

For more information about the Savannah district, visit our website at **www.sas.usace.army.mil**.

Direct questions about the website to David Wheeler:
e-mail: David.c.wheeler@usace.army.mil
Phone: (912) 652-5758.

Social Media
Twitter:
www.twitter.com/SavannahCorps

Facebook:
www.facebook.com/SavannahCorps

YouTube:
www.youtube.com/SavannahCorps

Flickr:
www.flickr.com/photos/savannahcorps

(Cover Photo and Above) Cargo is loaded and unloaded from container ships at the Georgia Ports Authority Garden City Terminal. *Photo courtesy of Savannah Morning News.*

CONTENTS

Viewpoint
From Where I Sit

SHEP impacts the District, Region, Nation

The Savannah Harbor Expansion Project – SHEP – remains the district's number one civil works priority because of the benefits to our nation.

After nearly 13 years of research, study, coordination, collaboration and refinement, we released the Final General Re-Evaluation Report and Final Environmental Impact Statement in April. In all its iterations, from the Tier One EIS 10 years ago, to the draft report in 2010 and the final report, one conclusion remained constant: deepening the Savannah harbor from its current depth of 42 feet to 47 feet proves to be the best alternative by enhancing the national economy while mitigating for impacts to the environment.

Col. Jeff Hall, commander of the U.S. Army Corps of Engineers, Savannah District, talks to media during a recent news conference announcing the release of the final report on the Savannah Harbor Expansion Project. *Photo by George Jumara.*

National and regional benefits

A deeper harbor meets the growing demands of businesses and manufacturers who import and export goods around the world. We estimate the project's annual net benefit to the nation is $174 million. That comes from increased shipping efficiencies by using fewer, larger ships. USACE's conservative formula estimates the initial investment for SHEP will create 11,000 jobs nationally, including more than 3,700 in the bi-state area and 2,400 locally.

Major changes

SHEP underwent significant changes from the draft report in November 2010 to April 2012's final report. We updated construction costs, environmental mitigation costs, and annual operations costs and compared them to the national economic benefits. We also considered public comments and requests from three federal cooperating agencies concerned with environmental protection. You'll see details, but the change I want to emphasize is the increase in benefits compared to costs of SHEP. Today, we anticipate that every dollar the American public puts into the deepening will give back about $5.50 – a great return on investment.

Protecting the environment

Ensuring that SHEP has no impacts to Savannah's water supply remains a high priority. So, the final plans include design of a new freshwater impoundment near the city's water intake on Abercorn Creek.

We also improved on the design of a fish passage around the New Savannah Bluff Lock and Dam. It opens fish habitat closed since 1937. We'll acquire and transfer freshwater wetlands to the Savannah National Wildlife Refuge, mitigate for impacts on coastal marshlands, and maintain the dissolved oxygen levels in the harbor by using Speece Cones to inject oxygen into the water as needed during the summer months.

Good for the District

Months of work remains for the district before the Army issues its Record of Decision. If approved and funded, SHEP designs will continue, followed by 48 to 60 months of construction and 10 years of environmental monitoring. Once complete, many team members will reflect back on SHEP. You should do so with well-deserved pride, knowing you had a part in an accomplishment that benefits people all across the nation.

By Col. Jeff Hall, Commander, USACE Savannah District

Studying Engineering Alternatives

At a Glance

On April 10, 2012, after in-depth study and analysis, the U.S. Army Corps of Engineers, Savannah District released the Final General Re-evaluation Report (GRR) and Environmental Impact Statement (EIS) on a proposal to deepen the Savannah Harbor from its current depth of 42 feet down to 47 feet.

The congressionally-authorized study reflects an extensive analysis of the engineering alternatives, environmental issues, and economic costs and benefits of deepening the Savannah Harbor and shipping channel. Funded by the federal government and the state of Georgia, the study examined the characteristics of future international shipping fleets, current and future trade routes, and the capacity of the Garden City terminal on the Savannah River. The articles in this issue provide an in-depth explanation of the engineering, environmental, and economic aspects of the project.

The next step is for the Departments of the Army, the Interior, Commerce and the Environmental Protection Agency to sign the Record of Decision—expected in late 2012—before construction begins.

Since the last major navigation improvements were completed by the Savannah district in April 1994, the Savannah Harbor has experienced significant growth in containerized cargo volume, vessel traffic, and the size and frequency of container ships calling at the port.

A study concluded by the Corps recommends deepening the harbor from its current authorized depth of 42 feet down to 47 feet. It also identified improvements to increase the efficiency and safety of cargo vessel operations. The study identified and evaluated alternatives to:

- Reduce congestion and improve the efficiency of operations for container ships within the navigation channel;
- Accommodate recent and anticipated future growth in containerized cargo and container ship traffic from deeper draft vessels expected to call on the port in Savannah.

The Final GRR and EIS has selected the 47-foot depth of the "National Economic Development" Plan because it yields the highest annual net benefit of all alternatives studied.

Navigation Features

Piloting cargo vessels in and out of the port of Savannah requires carefully timed passage and skillful maneuvering. Using computer models of water and wave actions, computer-simulated ship movements, and engineering analysis—all specific to the Savannah River entrance channel and harbor—the Corps devised navigation features to accommodate the next generation of deep-draft container ships expected to call on the port. Navigation features of the Savannah Harbor Expansion Project include:

- Extending the harbor entrance channel across the ocean bar an additional 7.3 miles
- Constructing meeting areas, which allow larger vessels to pass, at Long Island and Oglethorpe Ranges. Projections also consider the growth of future vessel designs
- Widening Kings Island Turning Basin to accommodate the larger ship dimensions
- Widening the channel at three bends in the river to allow the larger ships to navigate safely

River Banks

Geotechnical engineers investigated the effect of deepening on the Savannah River's banks. The proposed design will not widen the navigation channel along River Street, but will instead extend the existing side slopes down further. This creates a deeper, more narrow channel with minimal effects to the river bank. The Corps also conducted a bank erosion analysis that focused on locations where vessel waves could cause shoreline erosion. The analysis determined that larger vessels will not cause more erosion than is presently occurring. Harbor pilots move vessels past River Street at a minimal speed and create very little wave action.

Drinking Water

Geologists and engineers also studied the effect of harbor deepening on drinking water from the Floridan aquifer. The extensive study, conducted in cooperation

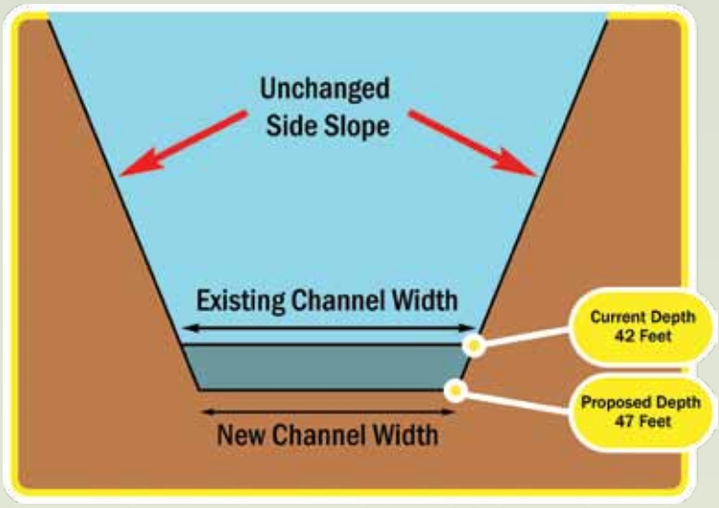


Diagram 1 shows how the proposed channel design would extend the existing side slopes down further, resulting in a deeper and narrower channel with minimal effects to the river banks. *Illustration by George Jumara*

with the Georgia Department of Natural Resources Environmental Protection Division, the South Carolina Department of Health and Environmental Control, and the U.S. Geological Survey showed that deepening to 47 feet will not significantly increase the rate of saltwater intrusion below the Savannah area, and therefore will pose little measurable change to the water quality in the aquifer. The analysis clearly shows the greatest impact to the aquifer is the current high withdrawal and use rate, not harbor deepening.

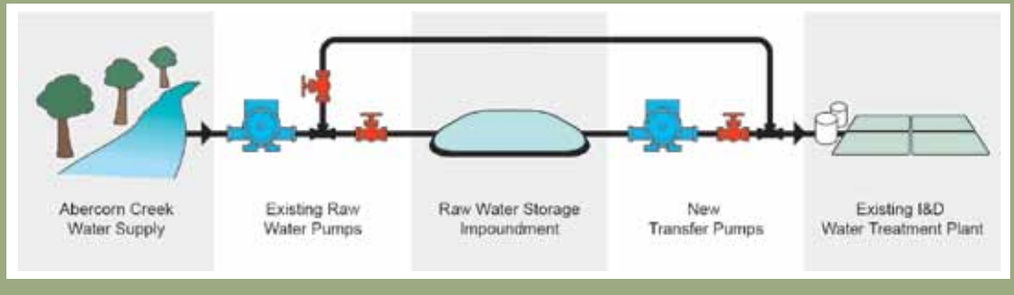
Other Studies

In total, the Corps undertook 64 engineering studies, some of which included:

- Ship simulations to aid in channel design, including vertical ship motion study
- Ship wake analysis to develop shoreline erosion estimates
- Soil borings for physical characterization of materials to be dredged
- Slope stability analysis to determine impacts to side slopes and banks
- Geologic field investigation/modeling to determine groundwater impacts to the Floridan aquifer
- Coastal erosion analysis to determine impacts to Tybee Island
- Shoaling and sedimentation analysis
- Hydrodynamic and water quality modeling for impact determination and mitigation plan development, including oxygen injection
- Analysis of dredged material, including physical and chemical properties
- Impacts to Savannah Harbor's Operation and Maintenance practices, including a dredged material management plan
- Mitigation feature design, including oxygen injection system, boat ramp and marsh restoration
- Cost estimating and cost risk analysis for all depth alternatives, value engineering study

By Sandra Hudson, Corporate Communications Office
Illustrations by George Jumara

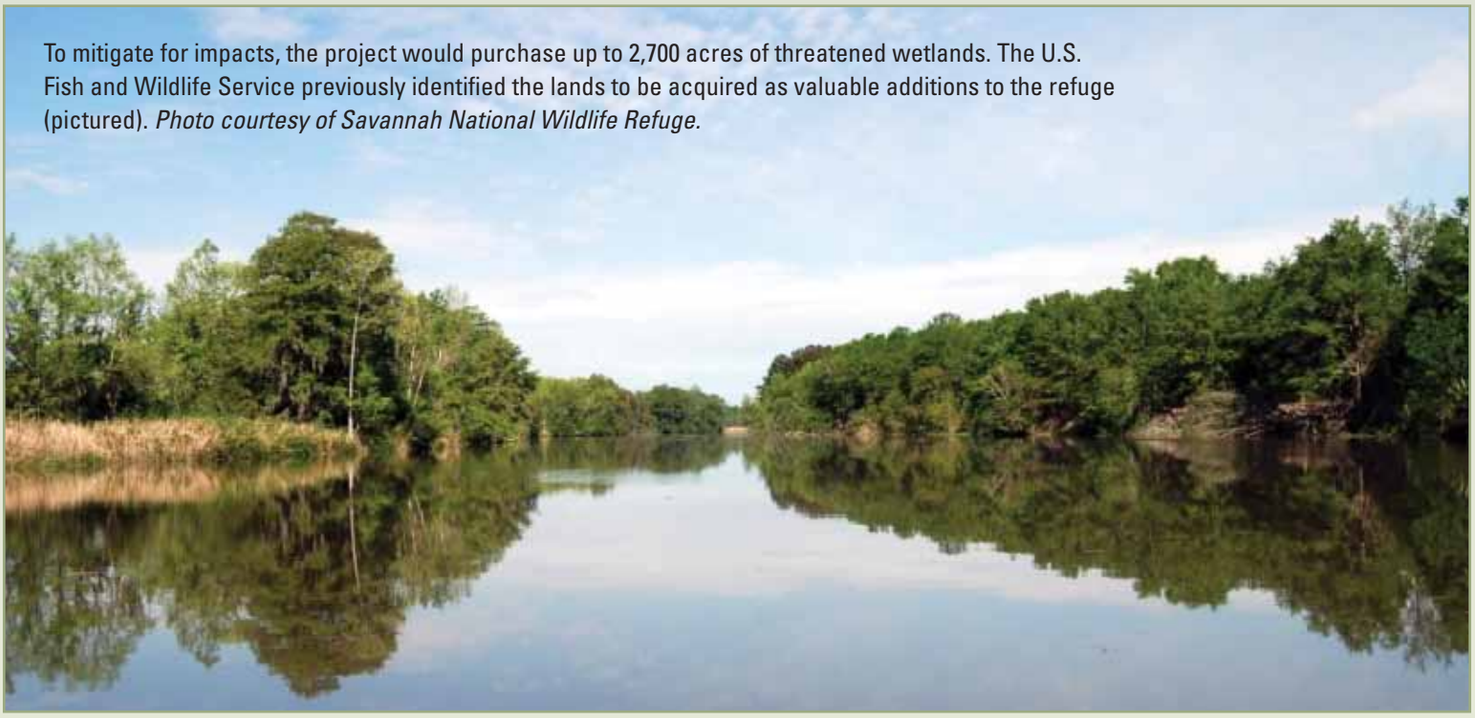
Additional Findings



After releasing the Draft GRR and EIS to the public in November 2010, information received during the comment period prompted the need for further analysis of the effects of the deepening on the Abercorn Creek Water Treatment Plant. Testing showed the infrequent combination of an extreme high tide coupled with low flows from the upper Savannah River could produce increased chloride levels if salt water pushes too far upstream. To compensate, the Corps will construct a 97 million gallon impoundment, which spans approximately 30 acres.

When conditions require doing so, the existing raw water pumps which draw from Abercorn Creek will be shut down. Then, newly installed transfer pumps will pull stored water—with acceptable chloride levels—from the impoundment area for passage through the water treatment plant. The City of Savannah has approved this chloride mitigation feature and will assume all operation and maintenance costs, once the $25.7 million project is complete.

Mitigating for Environmental Impacts



To mitigate for impacts, the project would purchase up to 2,700 acres of threatened wetlands. The U.S. Fish and Wildlife Service previously identified the lands to be acquired as valuable additions to the refuge (pictured). *Photo courtesy of Savannah National Wildlife Refuge.*

Environmental Review

Agency coordination on the report included the U.S. Environmental Protection Agency (USEPA), the U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA) Fisheries Service, state agencies in Georgia and South Carolina, and others. Substantial coordination with the public also occurred through multiple meetings of a Stakeholders Evaluation Group. The process included both the normal steps followed during a typical Corps civil works study as well as additional steps to meet the unique congressional authorization, which stipulates the final report must be approved by four federal agencies.

From a broad perspective, environmental mitigation planning consists of three major steps:

1) avoid impacts,
2) reduce impacts, and;
3) mitigate/compensate for unavoidable impacts.

The final report concludes that the environmental impacts of deepening the shipping channel to 47 feet can be mitigated to an acceptable level. Mitigation features account for ***45 percent*** of the total project cost (Estimated total cost is $652 million; mitigation cost is $292 million. *All costs are associated with Fiscal Year 2012 levels).* The final report addresses these environmental mitigation features:

Flow Re-routing and Freshwater Marsh

The 47-foot plan includes several modifications to a portion of the braided segment of the Savannah River. These changes will re-direct the flow of freshwater to significantly reduce the amount of impacts to freshwater marsh, which the Wetlands Interagency Coordination Team determined in 2003 to be the highest priority wetland natural resource in the Savannah River Basin. That team included representatives from Georgia, South Carolina, USEPA, USFWS and NOAA Fisheries. The flow re-routing plan essentially will direct more freshwater into the Back River area on the South Carolina side of the river.

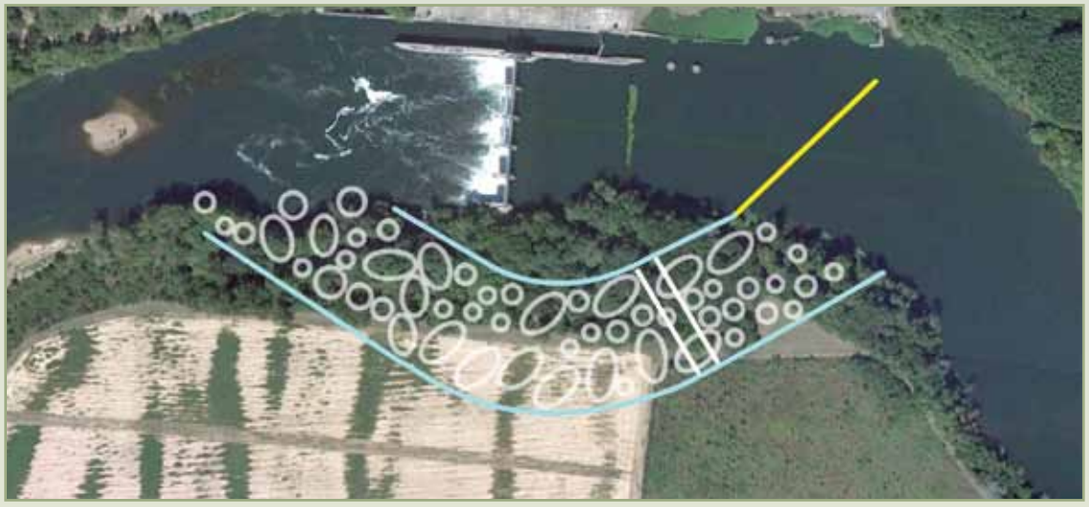
Without flow re-routing, the harbor deepening would increase salinity in 1,177 acres of freshwater tidal wetlands, converting it to brackish marsh. However, with flow re-routing, the project will only convert 223 acres of freshwater wetlands to brackish marsh. The additional freshwater may also convert 740 acres of salt marsh to brackish marsh. This conversion will be mitigated with the acquisition and preservation of 2,245 acres of freshwater wetlands for the Savannah National Wildlife Refuge, at a cost of $12.4 million. The USFWS previously identified the lands to be acquired as valuable additions to the refuge.

Marsh Restoration

The 47-foot plan would excavate 16 acres of tidal brackish marsh in Georgia to remove Back River tide gates and expand the Kings Island Turning Basin. To mitigate for those impacts, 28 acres of brackish marsh will be restored on Onslow Island, Ga., a former dredged material disposal site in the upper portion of the harbor, at a cost of $17.9 million.

Striped Bass

The Striped bass, a popular game fish, is making a comeback in the lower Savannah River as a result of a Georgia Department of Natural Resources stocking program. The deepening project would provide $3.3 million in funds for additional stocking to compensate for increased salinity in areas used by this species for spawning. The plan also includes construction of a boat ramp to restore boating access for fishermen on the Back River, at the request of the South Carolina Department of Health and Environmental Control.



Engineers redesigned and expanded the fish passage around the New Savannah Bluff Lock and Dam near Augusta. This passage will allow endangered sturgeon to enter spawning grounds closed to them since 1937.

Sturgeon

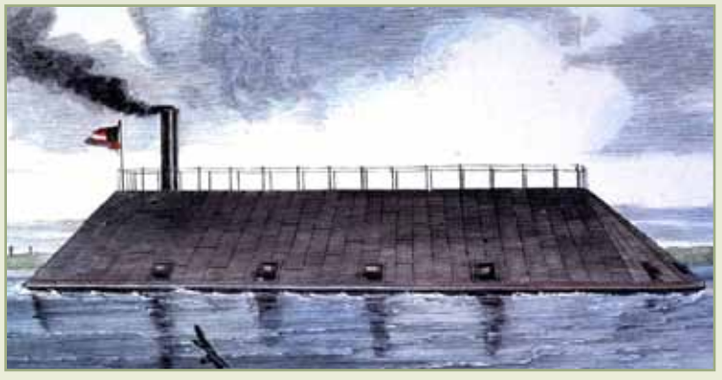
Harbor deepening would allow additional saltwater to enter the harbor and travel further upstream into areas currently used by endangered sturgeon species. The increased salinity would reduce the suitability of some of these areas. To compensate for those impacts, the project includes construction of a large fish bypass around the first dam up the Savannah River (New Savannah Bluff Lock and Dam). The design will enable the sturgeon and other species to swim upstream, as well as restore access to historical sturgeon spawning grounds. The gates at the dam will remain closed at flows less than 9,000 cubic feet per second (cfs) to allow 100 percent of the river flow to pass through the off-channel rock ramp. The design was coordinated closely with NOAA Fisheries and other natural resource agencies with an estimated cost of $30.2 million. NOAA Fisheries provided a Biological Opinion concluding that with the mitigation plan, the project will have no significant impact to these species.

Dissolved Oxygen

The deepening project includes the installation, operation and maintenance of 12 devices called Speece Cones, which will inject oxygen into the river to maintain necessary dissolved oxygen (DO) levels during hot, dry months, when oxygen levels typically drop. Two of the 12 Speece Cones will serve as back-up units. The total cost for the DO injection system is estimated at $72.2 million, with annual operation and maintenance costs at $1.2 million. The modeling that indicates oxygen levels would be impacted by harbor deepening also indicates that DO levels would exceed the existing conditions in well over 90 percent of the estuary with the DO system in place.

CSS Georgia

The historic ironclad CSS Georgia rests some 40 feet below the river's surface on the channel side slope and at the edge of the navigation channel. The harbor deepening plan calls for the data recovery, removal and conservation of this cultural resource before dredging in that area begins, at an estimated cost of $14.2 million.



Rendering of Confederate ironclad warship CSS Georgia which will be recovered from the Savannah River before deepening begins.

Post-Construction Monitoring and Adaptive Management

The final report identifies a post-construction monitoring period of 10 years (increased from five years in the draft report at the request of USEPA, USFWS, and NOAA Fisheries). This period provides the Corps increased time and resources to monitor the various mitigation features and make adjustments as necessary. The cost for this selective 10 year monitoring period is estimated at $61.4 million.

By Tracy Robillard, Corporate Communications Office
Illustration by George Jumara

Economic Costs and Benefits

The economic portion of the studies examined the characteristics of the future international shipping fleet, harbor commerce, current and future trade routes, and the capacity of the Garden City terminal on the Savannah River.

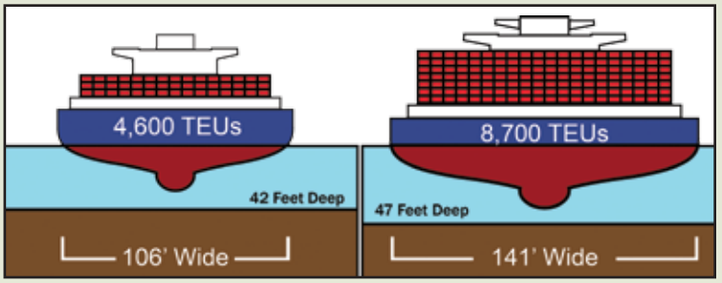
The Savannah Harbor

Savannah has the fastest growing container port in the nation but has the shallowest depth of its major worldwide trading partners. The harbor's current 42-foot depth limits efficiencies and increases transportation costs. Deepening the harbor will lower transportation costs, according to the report. Lower transportation costs can translate into lower consumer product costs.

A deeper shipping channel allows larger and fewer ships to move the same amount of goods at a lower transportation cost. Unloading and reloading fewer ships would be faster allowing goods to move in and out of the port more quickly. Fewer, larger ships also lessen congestion in the harbor, according to the report. A deeper channel also means larger ships can enter and leave with less delay waiting for high tides.

Deepening to 47 feet provides the greatest net benefits to the nation. Projections in the report indicate that the number of 20-foot equivalent units (the standard measure for cargo containers) passing through Savannah Harbor will rise from 2.9 million in 2011 to 6.5 million by 2030. The estimated annual transportation cost savings are $213 million per year. For every $1 invested in the project, the nation will see nearly $5.50 in return.

(Regional economic benefits are not used for project economic justification by the Corps since they would not affect the entire nation.)



The harbor's current 42-foot depth limits efficiencies and increases transportation costs. However, deepening the harbor will lower transportation costs, which can translate to lower consumer costs. *TEUs (Twenty-foot Equivalent Units) - The international standard unit for measuring cargo containers.

Post-Panamax class container ships like the MSC Roma (Above) are too large to transit the Panama Canal at its current depth. Capable of carrying 9,200 TEUs, or 20' containers, the Roma is one of the largest container ships to call on the Port of Savannah. To address the needs of vessels like the Roma, the Savannah Harbor Expansion Project studied the engineering alternatives, environmental impacts, and economic costs and benefits of deepening the Savannah Harbor and shipping channel. *USACE Photo.*

Complex issues

As the Corps' economic team studied the economics of a possible deepening, experts discovered that the standard methodology no longer fit the changing world of international shipping as it applies to container trade. The Corps also discovered that the shipping industry, international trade routes, and consumer demand has rapidly changed. These issues all meant that the Corps needed to create a new model to predict the national economic impact of deepening to various depths at Savannah. The economic team, which included experts in navigation at the Corps' Institute for Water Resources and the Deep Draft Navigation Planning Center of Expertise, received input from industry experts to evaluate the sophisticated nature of container ship operations. Although creating this new model added study time, the sophistication of the model provides higher quality and more refined information to be used in the decision-making process.

Costs, Benefits and Funding

On Nov. 26, 2010, the draft Environmental Impact Statement and draft General Re-Evaluation Report were published in the federal register and circulated for review and comment. Changes between the draft and final EIS and GRR were made as a result of various Corps reviews, an independent external peer review, and reviews by state and federal cooperating agencies and other stakeholders, including the public, and additional analysis. These changes resulted in some project features being modified, removed or added, and an update of project costs and benefits.

The final GRR and EIS identify the 47-foot "National Economic Development" Plan as the Selected Plan.

Costs of the studies and construction are shared between the U.S. government and the state of Georgia. If the harbor is deepened, those costs would also be shared for dredging to 47 feet.

Costs and Benefits

Item	November 2010 Draft (2011 Price Levels)	January 2012 Final (2012 Price Levels)
Selected Plan	- 47' Plan	- 47' Plan
Project First Cost	$560M	$652M
Annualized Benefits	$149M	$213M
Annualized Costs	$33M	$39M
Annualized Net Benefits (Annualized Benefits minus Annualized Costs)	$116M	$174M
Benefit to Cost Ratio * Budget Rate	4.5:1 (at 4.125%)	5.5:1 (at 4.0%)
	2.7:1 (at 7.0%)*	3.9:1 (at 7.0%)*

Containerized shipping, shown here at the Garden City Terminal, continues to grow at Savannah's port. *Photo by Brittany Phillips*

The project's "first cost" for construction of the selected plan is $652 million. This includes preconstruction engineering and design costs, construction costs, and the real estate necessary for the project. The Corps calculates the nation will receive benefits of $213 million annually or more at the selected depth, with a payback in net benefits in three years. The economic study evaluated benefit years 2017 through 2066.

By Rashida Banks, Corporate Communications Office
Illustrations by George Jumara

Corps Routine Maintenance Dredging Keeps Federal Channels Navigable

The Savannah River has undergone continuous changes since the U. S. Army Corps of Engineers, Savannah District was first directed by Congress to preserve navigation and secure flood protection along its 381-mile path. Dredges came to deepen, widen and redirect the river. There have been islands removed and even dams constructed.

However, each of those alterations to the Savannah's natural flow were man-made and required a congressionally-mandated Rivers and Harbors Act, plus comprehensive forethought to implement. But, what about changes taking place without consideration of the outcome—those induced by nature?

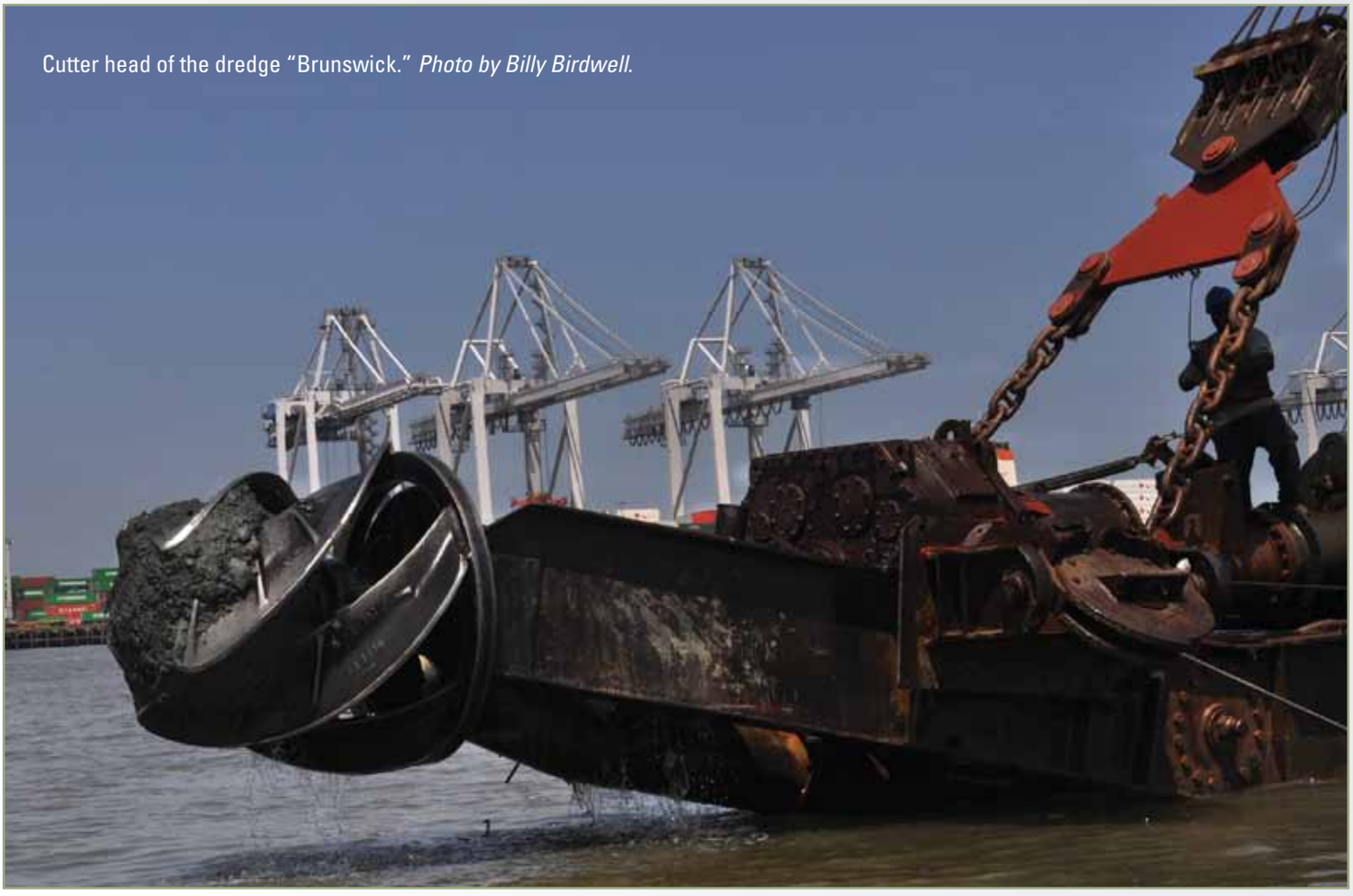
The answer lies in yet another Rivers and Harbors Act; the 1899 decree which mandated the Corps keep all federal channels navigable. That edict continues for the Savannah district today by way of routine maintenance dredging to combat shoaling in both the Brunswick and Savannah harbors.

"Ships import and export billions of dollars of goods annually. If they can't get in and out of the harbor, we haven't done our job."

— Stan Clark, chief of the district's Navigation branch.

"Shoaling occurs when silt from the rivers flows southward and gets deposited on the bottom," said Stan Clark, chief of the district's Navigation branch. "In turn, weather systems and deep ocean currents tend to bring material into the river channels."

Congress appropriates money to the Corps, which is distributed across all divisions on a priority basis, Clark said. "So, we would never get an appropriation large



Cutter head of the dredge "Brunswick." *Photo by Billy Birdwell.*

Tugboats reposition a cutter dredge at the King's Island turning basin. *Photo by Billy Birdwell.*

enough to remove this naturally-occurring phenomenon entirely each year."

Because of budgetary limitations, selecting the dredge site is a meticulous decision based on which type of vessel is needed, available for work, and the location of the most treacherous shoaling, said Clark.

One method the district uses in the entrance channel is a hopper dredge. Equipped with retractable arms which vacuum up the material and place it in huge bins, or hoppers, it then transports material to an authorized offshore Ocean Dredged Material Disposal Site.

"A hydraulic cutter dredge is the primary one used in the inner harbor," Clark said. "It houses a grinding mechanism which pulls material into a pipeline and carries it to an onshore dredge disposal area."

The district relies on data collected from its hydrographic survey vessels to find shoaling, said Burt Moore, dredging section supervisor. Equipped with sonar, they map the harbor and entrance channel. "Think of them as underwater depth meters," he said.

"This data is critical," said Clark. "Ships import and export billions of dollars of goods annually. If they can't get in and out of the harbor, we haven't done our job."

Aside from availability, type of vessel, and shoaling location, there's yet another factor to consider in this dance of the dredges—indigenous marine life.

"The National Marine Fisheries Service (NMFS) certifies people to serve as independent, endangered species observers during entrance channel operations," said Mary Richards, Savannah district biologist.

Observers use binoculars to scan the ocean for calving right whales and alert pilots if spotted, said Moore. They also document turtle takes. This generally happens when turtles hover in the valleys formed by the dredge head and get ingested as it sweeps over the waterway's floor, he said.

"This year's mild winter posed some unusually precarious circumstances for Kemp's ridleys, greens and loggerhead turtles," said Clark. "Warm waters kept them close to shore and unfortunately, in the areas we needed to work."

An agreement between the Corps' South Atlantic Division, the district, and NMFS requires specific actions after each take, said Richards, so all agencies can coordinate a go or no-go decision.

In one instance this season, a dredge in the Brunswick area had to cease operations less than 24 hours after arriving, Clark said. "It wasn't easy for me to tell the pilots we had to stop. It's their livelihood, but they understand the variables—both man-made and natural—the Corps has to balance."

"We do what we can," said Moore, "but Mother Nature always takes the material back to its natural repose." For now, the survey vessels continue to monitor the waterway and the district is researching alternative methods to remove critical shoaling in Brunswick, he said.

"We have an obligation to provide operations and maintenance dredging for the federal channel," said Clark. "We have no choice but to find the right method and get the job done."

By Sandra Hudson, Corporate Communications Office

Advancing Energy Innovation

In a world where reducing dependence on fossil fuels grows more important every day, the U.S. government is focusing on using clean, renewable energy technologies to meet the changing energy demands of the nation and strengthen its energy independence.

But the challenge is *how to deliver* sources like solar, biomass, wind, wave, geothermal or other power generation technologies in a cost effective, large-scale manner that will satisfy the nation's energy requirements.

The U.S. Army and the U.S. Army Corps of Engineers are addressing the challenge through the development of Regional Energy Initiatives. These geographically-organized partnerships combine the energy demands of multiple federal partners within a region to develop large-scale, renewable energy projects at the best possible value.

"The goal is to create an attractive business case for financiers and utilities to develop renewable projects on available federal lands with a guaranteed base of federal customers," said Gordon Simmons, chief of the Savannah district Engineering division.

A regional initiative that is gaining momentum as an example of successful partnering is the Southeast Energy Initiative, spearheaded by the Savannah district and the Department of Energy's Savannah River National Laboratory (SRNL). Together, the agencies work to meet the energy demands unique to the Southeast through alternative, non-fossil-fuel burning energy sources.

But why the Southeast? Several issues make the region unique. Census projections show a 32 percent population growth in the Southeast between 2000 and 2030—a rate that is significantly higher than any other region in the nation. Likewise, the demand for energy will rise 32 percent in a similar timeframe, according to the Energy Information Administration. This increasing trend in population and energy demand is complicated with the region's high temperatures and humidity rates, which demand controls for human comfort, equipment protection, and mold control.

To address these increasing energy demands, the Savannah district and the SRNL have teamed up as the technical and program management agency responsible for planning, execution, and oversight of the Southeast Energy Initiative.

"By addressing renewable energy needs on a regional basis, the Savannah district can help build solutions based on our existing knowledge and relationships with military installations, other federal partners, utility companies, and regional energy regulators," Simmons said. "It focuses on solutions that provide the best value for the region—complementing national solutions—and it allows for development of subject matter expertise related to regional issues."

The Savannah River National Laboratory plays a key role in the Southeast Energy Initiative as a leader in renewable energy technologies, such as biomass steam and electricity produced at the newly-constructed Ameresco Biomass Cogeneration Facility, located at the Department of Energy Savannah River Site. *Photo courtesy of SRS.*

Speaking of expertise, the Savannah and Mobile districts were recently designated as the Joint Energy Regional Center of Expertise within the Corps' South Atlantic Division, which spans eight southeastern states. Together, the combined engineering staff includes more than 300 professionals that specialize in optimal energy planning and design.

The SRNL, located on the Savannah River Site (SRS) near Aiken, S.C., plays a key role in the Southeast Energy Initiative as a leader in renewable energy technologies, such as biomass, biofuel, and hydrogen systems, as well as alternate energy solutions in the form of small modular nuclear reactors.

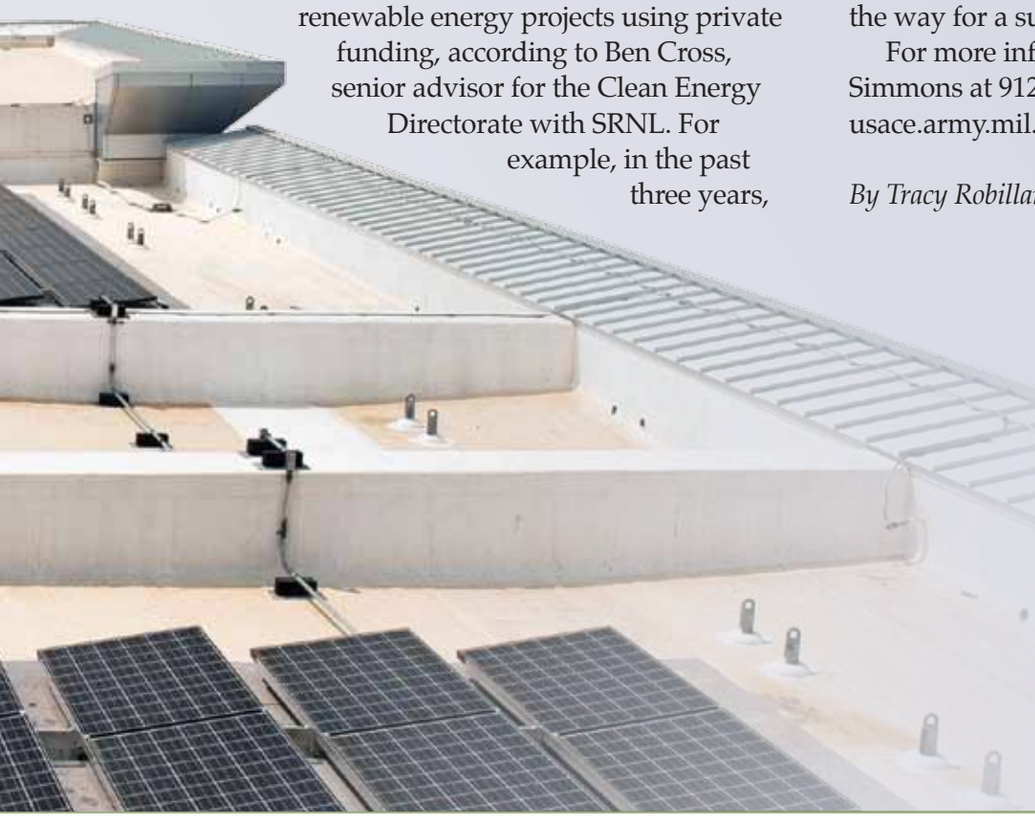
The site is already implementing several renewable energy projects using private funding, according to Ben Cross, senior advisor for the Clean Energy Directorate with SRNL. For example, in the past three years, SRS has built four biomass plants—three smaller units providing 60,000 pounds of steam per hour (pph) and one large unit providing co-generation of 20 megawatts of electricity (MWe) and 200,000 pph steam. These biomass plants provide 40 percent of the site's required electricity and 100 percent of the site's required steam, all constructed and operated with private support and minimal federal investment, Cross said.

"As we develop these types of energy projects with private-public partnerships, we plan to leverage and expand the relationships and lessons learned with the Southeast Energy Initiative," Cross said.

While the team is still a long ways from implementing projects, the partnerships formed are beginning to pave the way for a successful venture in energy innovation.

For more information on the initiative, contact Gordon Simmons at 912-652-5927 or e-mail Gordon.L.Simmons@usace.army.mil.

By Tracy Robillard, Corporate Communications Office



As a leading agency in the Southeast Energy Initiative, the U.S. Army Corps of Engineers, Savannah District will expand its capabilities to deliver renewable energy sources, like solar panels (pictured) at the Maneuver Center of Excellence Headquarters at Fort Benning, Ga. The $168 million renovation project was completed in September 2011 and includes 40,000 square feet of solar panels, a rainwater collection system for irrigation and cooling, among other sustainable features. *Photo courtesy of AECOM Technical Services, Inc.*

Supporting Soldiers and Families

Warrior in Transition Complex – Fort Benning, Ga.

Wounded and injured Soldiers at Fort Benning, Ga., now have a new $33.2 million Warrior in Transition Complex to help them rehabilitate or transition back into duty or civilian life. The complex, recently completed by the Savannah district, provides quality housing and assistance for Soldiers during the healing process, as part of the Army's Warrior Care and Transition Program.

Located on Marne Road adjacent to Martin Army Community Hospital, the complex includes an administrative building, soldier and family assistance center (SFAC), and five-story barracks facility. Construction on the complex began March 2010 and was completed November 2011. The project was executed in two phases and two separate contract actions - one for the barracks and overall site work and the second for the administrative facilities and SFAC.

The Savannah district is constructing similar complexes at Forts Bragg and Stewart.

Irwin Intermediate School – Fort Bragg, N.C. (Opening August 2012)

Students attending Irwin Intermediate School at Fort Bragg, N.C., will begin the next school year in a brand new $14.9 million facility constructed by the Savannah district. The 117,400 square-foot facility was completed in April 2012 replacing the original Irwin building built in 1962. Located off of Normandy Drive, near Butler and Murray elementary school, the new Irwin facility will serve 725 students in elementary grades. Amenities include art, music, and general-purpose classrooms, computer labs, playground, gymnasium, and multi-purpose rooms with a stage and kitchen.

Training Barracks Upgrade Program – Fort Gordon, Ga

The Savannah district is bringing new life to barracks, administrative, and dining facilities at Fort Gordon, Ga. The $352 million multi-year project, funded by the Training Barracks Upgrade Program, includes the renovation of 40-year old barracks and supporting buildings to provide adequate living, working, and dining spaces for Soldiers. The transformation will extend the life of the buildings an additional 25 years, while giving the buildings a new look and upgrade to current Army standards. In all, there are a total of 35 buildings being upgraded. This includes 18 barracks, one brigade headquarters, four battalion headquarters, four dining facilities, and eight company administration buildings. To date, the project is about 50 percent complete. The new, modernized barracks accommodate 190 Soldiers and consist of two-person suites. The facilities also include new air, heat, plumbing, and electrical systems and now feature a dayroom, two laundry rooms, and a computer lab. The project, which began in Jan 2008, is being completed in multiple phases and is scheduled for completion in Spring 2016.

North Troop Medical Clinic – Fort Stewart, Ga

Soldiers at Fort Stewart, Ga., will benefit from a variety of outpatient services at the new $10.1 million North Troop Medical Clinic recently constructed by the Savannah district. The 39,298 square-foot facility serves active duty Soldiers and is located in the newly-built 4th Infantry Brigade Combat Team complex completed by the Savannah district in June 2011. Along with physical therapy, the clinic includes primary care physicians, pharmacy, radiology, behavioral health, optometry, and dental.

By Rashida Banks, Corporate Communications Office

Hartwell Dam Turns 50

Officials with the U.S. Army Corps of Engineers (USACE) commemorated Hartwell's 50th Anniversary on April 27, 2012—exactly 50 years from the day in 1962 when the power plant first generated and delivered electricity to the grid.

The Hartwell Dam and Lake Project Office hosted a commemoration ceremony with more than 350 in attendance. The audience included community members, stakeholders, government officials, Corps employees and retirees, and former construction workers who helped build the dam.

The event paid tribute to hundreds of men and women who devoted their time and talents to the Hartwell Project over the last half century. About 15 former construction workers and their families attended the celebration and were presented commemorative coins.

"The heart of this project didn't spring from diagrams and drawings, but rather it stemmed from the ideas in the minds of the visionaries who designed it and the workers who breathed life into it," said Col. Jeffrey M. Hall, Commander of the USACE Savannah District, which operates and maintains the dam.

The keynote address came from Richard Lockwood, Chief of Operations and Regulatory for the USACE Headquarters in Washington, D.C. Lockwood highlighted the need to improve and modernize the nation's infrastructure, as projects like the Hartwell Dam age.

"The infrastructure of our nation needs renewal," Lockwood said. "The folks that built this Monument to Progress, and thousands of others like it, had a vision of greatness and a will to make it happen."

"We are now at a tipping point," he said. "We can continue to stand on the shoulders of those that have gone before us and enjoy their dream; but we must also honor that dream with a vision of our own."

Carol Burdette, a lifetime resident of the Hartwell Lake area with 25 years in public service, served as the Mistress of Ceremonies and spoke about her childhood memories of the lake.

Col. Jeff Hall, Savannah District Commander; George Bramlette, Hartwell Operations Project Manager; Col. Eric R.P. Conrad, South Atlantic Division Commander; and Richard Lockwood, Chief of Operations and Regulatory for USACE Headquarters, cut the cake at the Hartwell Dam and Lake 50th Anniversary commemoration ceremony, April 27, 2012. *Photo by William Powell.*

"My first real recollection of the lake was when I was about six, and my family got a boat," she said. "For the next five or six years, I spent part of almost every weekend fishing and getting sunburned on Lake Hartwell."

"…You see, I lost my mother when I was 14, and the time we spent on Lake Hartwell was some of my best memories of her," Burdette said.

Other guest speakers included representatives from the Lake Hartwell Marketing Alliance, the Lake Hartwell Association, the Southeastern Power Administration, and the Southeastern Federal Power Customers Group.

By Tracy Robillard, Corporate Communications Office

Hartwell Dam and Lake, located on the upper Savannah River in Hartwell, Georgia. *Photo by Tracy Robillard*